AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Original) Apparatus for differential pressure forming a single article from three heat deformable thermoplastic sheets comprising:

four work stations designated one, two, three and four positioned in spaced relation in a circular arrangement,

a frame supporting said work stations,

said work stations one, two and three including an oven for heating the thermoplastic sheets to a thermoformable temperature,

said work station four including opposed platens movable vertically between open and closed positions,

an indexing wheel rotatably supported surrounding said work stations,

said indexing wheel including four clamp frames movable with said indexing wheel into spaced relations with said four work stations respectively, and

drive means connected to said indexing wheel for rotating said indexing wheel to advance the three thermoplastic sheets secured to said clamp frames to said work stations one, two, and three for heating and to said work station four for molding each of the three heated thermoplastic sheets into a preselected configuration and fusing the molded sheets together in overlying relation to form a unitary thermoplastic article.

2. (Currently Amended) Apparatus for thermoform molding three thermoplastic sheets to form a triple sheet molded article comprising:

a work station,

three thermoforming molds designated one, two, and three supported on said work station for molding three thermoplastic sheets respectively, each of said three thermoforming molds having an oven for heating said three thermoplastic sheets to a thermoformable temperature,

a slide assembly mounted on said work station for independently moving two molds in overlying relation into and out of a fixed position on said work station for molding the thermoplastic sheets,

a first platen and a second platen positioned in overlying spaced relation on said work station for independent movement between open and closed positions,

said first platen receiving mold one for movement into compressed relation with sheet one,

said second platen slidably receiving molds two and three in succession for movement into compressed relation with sheets two and three in succession respectively,

said first platen with said mold one positioned thereon movable to a closed position into contact with sheet one to mold sheet one into a preselected configuration,

said second platen with said mold two positioned thereon movable to a closed position into contact with sheet two to mold sheet two into a preselected configuration,

said first and second platen with molded sheets one and two thereon movable into compressed relations to force together molded sheets one and two to form a twin sheet molded sub-assembly,

said first platen retaining the twin sheet molded sub-assembly with said second platen slidably exchanging mold two with mold three,

said second platen with said mold three positioned thereon movable to a closed position into contact with sheet three to mold sheet three into a preselected configuration, and

said first platen carrying the twin sheet molded sub-assembly into compressed relation with said second platen carrying the molded sheet three to fuse molded sheet three to the twin sheet molded article to form a triple sheet molded article.

3. (Original) A thermoforming machine comprising:

a machine frame;

three ovens spaced upon the machine frame;

at least three clamp frames operable to convey three sheets in succession through the three ovens and a form station;

the form station has a lower platen and an upper platen;

the lower platen supports a first mold;

the upper platen is connected to a mold shuttle system, the mold shuttle system holds a second mold and a third mold and is operable to alternately deliver the second mold and the third mold into a supporting position upon the second platen;

the lower platen is operable to carry the first mold from an open position to a first closed position to thermoform a first sheet, repeatedly carry the thermoformed first sheet to the open position, compress the first mold against the second mold at a second closed position, and compress the first mold against the third mold at a third closed position; and

the upper platen is operable from an open position to interface with the mold shuttle system, to receive and carry the second mold to a first closed position to thermoform a second sheet, to receive and carry the third mold to a second closed position to thermoform a third sheet, and remain in the first and second closed positions when the lower platen compresses the first mold against the second mold in the first closed position and the third mold in the second closed position.

4. (Original) The thermoforming machine of claim 3 further comprising:

a bolster plate beneath the first mold;

between the bolster plate and the lower platen a plurality of vertically acting actuators; and

a controller means causing the actuators to incrementally move the bolster plate vertically compressing the first mold against the second mold in the first closed position and the third mold in the second closed position.

5. (Currently Amended) A thermoforming apparatus ~~having a triple sheet form station, the triple sheet form station~~ comprising:

a frame;

at least three spaced apart ovens for heating thermoplastic sheets to a thermoformable temperature;

a lower platen supported for vertical movement upon the frame;

a first mold mounted on the lower platen;

an upper platen supported for vertical movement upon the frame above the lower platen;

a mold shuttle system supported upon the frame acting with the upper platen;

a second and third mold mounted for horizontal movement on the mold shuttle system; and

an controllable actuation means selectively moving the second or third mold horizontally on the mold shuttle system into an engaged position upon the upper platen for vertical movement thereon,

wherein the first mold, second mold, and third mold are operable to fuse said thermoplastic sheets received from said at least three spaced apart ovens.

6. (Original) The triple sheet form station of claim 5 further comprising:

a plurality of upper gear posts supported upon the frame extending vertically adjacent the upper platen;

engaging the upper gear posts upper platen gears precisely driven by at least one first motor for selective vertical movement of the upper platen;

a plurality of gear posts supported upon the frame extending vertically adjacent the lower platen below the upper gear posts;

engaging the lower gear posts lower platen gears precisely driven by at least one second motor for selective vertical movement of the lower platen below the upper platen; and

a controller means for selectively controlling the first and second motors for independent and simultaneous precise movement of the upper and lower platens upon the frame.

7. (Cancelled)

8. (Cancelled)

9. (New) A thermoform tooling apparatus comprising:

a first oven operable to heat a first thermoplastic sheet;

a second oven being spaced apart from said first oven, said second oven operable to heat a second thermoplastic sheet;

a third oven being spaced apart from said first and second ovens, said third oven operable to heat a third thermoplastic sheet;

a work station being spaced apart from said first, second, and third ovens, said work station having a first platen and a second platen movable relative to each other between a first position and a second position;

a drive assembly supporting each of said first, second, and third thermoplastic sheets, said drive assembly operable to position said first, second, and third thermoplastic sheets within said first, second, and third ovens, respectively, and further operable to deliver said first, second, and third thermoplastic sheets to said work station for fusing said first, second, and third thermoplastic sheets together.

10. (New) The thermoform tooling apparatus according to claim 9 wherein said drive assembly comprises:

an indexing wheel having a plurality of frames for supporting said first, second, and third thermoplastic sheets; and

a drive device operably coupled with said indexing wheel for driving said indexing wheel.

11. (New) The thermoform tooling apparatus according to claim 9, further comprising:

a first mold mounted on the first platen;

a mold shuttle system operably coupled with the second platen;

a second and third mold mounted for horizontal movement on the mold shuttle system; and

an controllable actuation means selectively moving the second or third mold horizontally on the mold shuttle system into an engaged position upon the second platen for vertical movement thereon.